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December 19, 2011

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555-0001

Subject: Duke Energy Carolinas, LLC (Duke Energy)
Catawba Nuclear Station, Units 1 and 2
Docket Number 50-413 and 50-414
Notice of Enforcement Discretion (NOED) Request
Technical Specification (TS) 3.7.11, "Control Room Area Chilled Water System (CRACWS)"
TS Limiting Condition for Operation (LCO) 3.0.3

This letter documents the background and technical information supporting the Catawba Nuclear Station, Units 1 and 2, NOED request discussed with NRC staff during a telephone conference call held on December 15, 2011. On December 15, 2011 at 1800 hours, Duke Energy subsequently received verbal approval from the NRC staff for the NOED. This submittal fulfills the requirement that a written NOED request be submitted to the NRC within two working days following NRC verbal approval of the NOED. The attachment provides the basis for the NOED.

As discussed and detailed in the attachment, Duke Energy requested discretion from enforcing a portion of TS LCO 3.0.3. At the time of the request, both CRACWS trains were inoperable and Catawba took action as required by TS 3.7.11 Condition E. This required both units to immediately enter TS LCO 3.0.3. LCO 3.0.3 requires the units to be placed in Mode 3 within 7 hours, Mode 4 within 13 hours, and Mode 5 within 37 hours. Catawba entered TS 3.7.11 Condition E and TS LCO 3.0.3 at 0739 hours on December 15, 2011. Subsequently, Units 1 and 2 entered Mode 3 on December 15, 2011 at 1421 hours and 1422 hours, respectively. Duke Energy subsequently requested allowing the units to remain in Mode 3 for an additional 12 hours so that repairs could be completed to restore Train A of the CRACWS to operable status. (The required Completion Time for being in Mode 4 was 2039 hours on December 15, 2011. The requested additional 12 hours extended this Completion Time to 0839 hours on December 16, 2011. In addition, the NOED request also shifted the corresponding Completion Time for being in Mode 5 by the same additional 12 hours.)

The two Catawba units share a common control room. The CRACWS consists of two independent and redundant trains which are shared between the units. At the time of the conference call, Train A of the CRACWS was inoperable due to planned maintenance, and Train B of the CRACWS had unexpectedly tripped at 0720 hours. The cause of the trip is presently being investigated and is believed to be due to a failed

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microprocessor. This resulted in entry into LCO 3.7.11 Condition E and LCO 3.0.3 and the subsequent commencement of the shutdown of both units. As the shutdown proceeded, Duke Energy requested discretion to not comply with the Mode 4 shutdown requirement of LCO 3.0.3 for a maximum of 12 additional hours, in order to allow time to restore Train A of the CRACWS to operable status.

Train A of the CRACWS was subsequently restored to operable status on December 15, 2011 at 2236 hours, thereby using approximately 2 hours of the requested 12 hour NOED period.

This request for enforcement discretion was approved by the Catawba Plant Operations Review Committee (PORC) in a special meeting held on December 15, 2011.

This submittal contains one regulatory commitment as discussed in Item 12 of the attachment.

Questions on this matter should be directed to L.J. Rudy at (803) 701-3084.

Very truly yours,

James R. Morris

LJR/s

Attachment

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Duke Energy Carolinas, LLC
Catawba Nuclear Station, Units 1 and 2
Notice of Enforcement Discretion (NOED) Request
Technical Specification (TS) 3.7.11
Control Room Area Chilled Water System (CRACWS)
TS Limiting Condition for Operation (LCO) 3.0.3

Background

On December 15, 2011 at 0720 hours, Train B of the CRACWS unexpectedly tripped and it was subsequently declared inoperable at 0739 hours. At the time, Units 1 and 2 were in Mode 1 at 100% power operation. This NOED requested discretion from compliance with TS LCO 3.0.3 as it pertains to the requirement to be in Mode 4 within 13 hours. Train A of the CRACWS had been previously declared inoperable on December 11, 2011 at 2150 hours due to planned maintenance activities.

Duke Energy requested an additional 12 hours before the Mode 4 requirement of LCO 3.0.3 was enforced. Units 1 and 2 entered Mode 3 on December 15, 2011 at 1421 hours and 1422 hours, respectively. (The required Completion Time for being in Mode 4 was 2039 hours on December 15, 2011. The requested additional 12 hours extended this Completion Time to 0839 hours on December 16, 2011. In addition, the NOED request also shifted the corresponding Completion Time for being in Mode 5 by the same additional 12 hours.)

The CRACWS provides temperature control for the control room and control room area during both normal and accident conditions. The CRACWS consists of two independent and redundant trains that provide cooling of recirculated control room air. Each train consists of cooling coils, instrumentation, and controls to provide for control room and control room area temperature control.

The CRACWS is an emergency system, parts of which also operate during normal unit operations. A single train will provide the required temperature control to maintain the control room at approximately 75°F.

Need for NOED

Duke Energy requested that the NRC exercise discretion in enforcing compliance with the LCO 3.0.3 requirement to be in Mode 4 for 12 additional hours, in addition to the 13 hours allowed. The NOED allowed Unit 1 and Unit 2 to remain in Mode 3, thereby avoiding an unnecessary cooldown transient.

Basis for NOED

Duke Energy reviewed NRC Regulatory Issue Summary 2005-01, "Changes to Notice of Enforcement Discretion (NOED) Process and Staff Guidance", and the accompanying NRC Inspection Manual Part 9900 Technical Guidance, "Operations – Notices of Enforcement Discretion", and concluded that Part 9900 Section B.2.1, "Situations

Affecting Radiological Safety – Regular NOEDs", Criterion 2 was satisfied. This criterion applies to plants in a shutdown condition desiring to reduce shutdown risk by avoiding testing, inspection, or system realignment that is inappropriate for the particular plant conditions, in that it does not provide an overall safety benefit or may, in fact, be detrimental to safety in the particular plant condition. The basis for this conclusion and other information required to support a request for NOED is provided below.

1. The TS or other license conditions that will be violated.

   Response:

   Having both trains of the CRACWS inoperable caused Units 1 and 2 to enter TS 3.7.11 Condition E, which applies when both CRACWS trains are inoperable in Mode 1, 2, 3, or 4. Required Action E.1 mandates an immediate entry into LCO 3.0.3. Entry into LCO 3.0.3 requires that action be initiated within 1 hour to place the unit, as applicable, in Mode 3 within 7 hours, Mode 4 within 13 hours, and Mode 5 within 37 hours.

2. The circumstances surrounding the situation: including likely causes; the need for prompt action; action taken in an attempt to avoid the need for an NOED; and identification of any relevant historical events.

   Response:

   On December 11, 2011 at 2150 hours, Train A of the CRACWS was declared inoperable for planned maintenance to replace a non-conforming pump shaft with a conforming material. During the fill and vent on December 13, 2011, a cooling water leak was identified. Actions to tighten the fitting on December 14, 2011 reduced the leakage to 5 drops per minute (dpm). A decision was made to obtain tubing and eliminate the leakage on December 14, 2011 while Catawba was in the appropriate train week. This maintenance evolution was originally scheduled to be completed on December 15, 2011 at 1900 hours.

   On December 15, 2011 at 0720 hours, Train B of the CRACWS tripped unexpectedly. At 0739 hours, Units 1 and 2 entered TS 3.7.11 Condition E and LCO 3.0.3. The control room entered the abnormal procedure for loss of control room cooling. The cause of the Train B trip was investigated and is believed to be due to a failed microprocessor.

   On December 15, 2011 at approximately 1500 hours, Train A of the CRACWS was started and it ran successfully (Train A was not yet operable at this time, however). At this point, one train of cooling capability was available for the control room and control room area.

   On December 15, 2011 at 2236 hours, all maintenance work was completed on Train A of the CRACWS and Train A was declared operable.

On December 16, 2011 at 0259 hours, all maintenance work was completed on Train B of the CRACWS and Train B was declared operable.

3. Information to show that the cause and proposed path to resolve the situation are understood by the licensee, such that there is a high likelihood that planned actions to resolve the situation can be completed within the proposed NOED time frame.

Response:

Troubleshooting was immediately commenced upon the trip of the Train B CRACWS chiller. A plan was developed to restore the Train A CRACWS chiller to operable status. This included filling and venting the system, swapping operating trains from Train B to Train A, performing required post-maintenance testing, and evaluating the small leak on the train. At the time of the NOED request, Catawba projected Train A of the CRACWS to be restored to operable status by December 15, 2011 at 1900 hours.

4. The safety basis for the request, including an evaluation of the safety significance and potential consequences of the proposed course of action.

a. Provide the incremental conditional core damage probability (ICCDP) and incremental conditional large early release probability (ICLERP) associated with the period of enforcement discretion.

Response:

The impact on the ICCDP is expected to be much less than 5E-07 and the impact on the ICLERP is expected to be much less than 5E-08 (also see Part 4.b below).

b. Discuss the dominant risk contributor (cutsets/sequences) and summarize the risk insights for the plant-specific configuration the plant intends to operate in during the period of enforcement discretion.

Response:

Core Damage Frequency (CDF)

The CRACWS has no impact on the calculated CDF at Catawba. The CRACWS, specifically the control room chillers, are not included in the Level One Probabilistic Risk Assessment (PRA) model. The safety significance of the CRACWS is low because of the opportunity to mitigate the consequences with plant Abnormal Procedures (APs). When control room temperature becomes elevated, the control room Senior Reactor Operator will enter AP/0/A/5500/039, "Control Room High Temperature". This procedure will direct the control room crew to monitor and take actions necessary to cool the control room via opening doors. As a

result, the loss of the CRACWS has been screened out of the Catawba PRA as either an initiating event or as a support system failure since it is a slow moving transient due to the preplanned actions described above. The loss of the CRACWS can be mitigated by the following remedial measures:

- The control room and its equipment can be cooled by opening the control room doors and allowing the computer area cooling system to provide some heat removal capability along with the additional air flow achieved with the doors open. Cabinet doors can be opened as needed to help ventilate equipment in the control room.

- The essential switchgear rooms are also cooled by the CRACWS. Adequate cooling for these rooms can be maintained by opening doors.

- The plant can also be maintained in hot standby from the Standby Shutdown Facility (SSF). Reactor coolant pump seal injection and heat removal can be maintained independent of any equipment affected by a loss of the CRACWS. Seal injection can be maintained by the standby makeup pump controls along with the necessary valve controls. Seal injection can be verified at the SSF by use of the discharge flow gauge. The indications for control of the Auxiliary Feedwater (AFW) System are also available in the SSF to ensure an adequate heat sink is maintained.

- The units can be maintained in a stable condition from remote locations. The Auxiliary Shutdown Panels (ASPs), located in the AFW pump rooms, can be used to provide control for all systems needed to maintain a hot standby condition and to cool down the units to cold shutdown conditions. In addition to AFW, these systems include the Nuclear Service Water System, the Chemical and Volume Control System, the Residual Heat Removal System, and the Component Cooling Water System.

- The risk associated with staying at Mode 3 is comparable or less than the risk of transitioning to Mode 4 (and subsequently to Mode 5) because defense-in-depth is improved. In Modes 4 (once RHR is placed inservice) and 5, the Residual Heat Removal (RHR) System is relied upon for RHR cooling operated either from the main control room or from the ASPs if needed. The RHR System is dependent upon equipment (e.g., 4160 volt switchgear) in the switchgear room cooled by the CRACWS. Remaining in Mode 3 provides the additional capability of using the SSF to maintain core cooling independent of the availability of the main control room or the ASPs.

Large Early Release Frequency (LERF)

The CRACWS has no impact on the calculated LERF at Catawba. The CRACWS, specifically the chillers, are not included in the LERF model for the reasons described previously.

In summary, the conclusions for the CRACWS having minimal safety significance are:

- Slow moving transient - there is time to react before failures occur and there are preplanned remedial actions available.
- Control from the ASPs is available.
- Control from the SSF is available.

Therefore, as stated in Item 4.a, the impact on the ICCDP is expected to be much less than 5E-07 and the impact on the ICLERP is expected to be much less than 5E-08.

c. Explain compensatory measures that will be taken to reduce the risk associated with the specified condition.

Response:

As a result of a review of the base case PRA model and the specific CRACWS issue, the following compensatory measures are being taken to reduce risk during the NOED period:

1. Defer non-essential activities where human error could contribute to the likelihood of a plant transient and subsequent demand on mitigating systems.
2. Defer non-essential switchyard and transformer yard activities where human error could contribute to the likelihood of a loss of offsite power.
3. Defer non-essential surveillances or other maintenance activities on other risk significant equipment, such as the emergency diesel generators, the Component Cooling Water System, the SSF, and the ASPs.
4. Defer non-essential maintenance activities on fire detection and suppression systems.
5. Brief each operating shift on the actions required by AP/0/A/5500/039.

6. Enter hazard barrier procedure for leaving control room doors open.

d. Discuss how compensatory measures are accounted for in the PRA. These modeled compensatory measures should be correlated, as applicable, to the dominant PRA sequences identified in Item 4.b above. In addition, other measures not directly related to the equipment out-of-service may also be implemented to reduce overall plant risk and, as such, should be explained. Compensatory measures that cannot be modeled in the PRA should be assessed qualitatively.

Response:

The risk evaluation was qualitative. However, these actions are aligned with the dominant risk contributors; therefore, they should result in a significant risk reduction during the NOED period, such that the proposed NOED does not result in any net increase in risk to the public.

e. Discuss the extent of condition of the failed or unavailable component(s) to other trains/divisions of equipment and what adjustments, if any, to the PRA common cause factors have been made to account for potential increases in the failure probabilities. The method to use to determine the extent of condition should be discussed. It is recognized that a formal root cause or apparent cause is not required given the limited time available in determining acceptability of a proposed NOED. However, a discussion of the likely cause should be provided with an associated discussion of the potential for common cause failure.

Response:

No common cause failure modes were considered in the PRA analysis for the CRACWS. Therefore, no adjustments are required in the common cause analysis.

f. Discuss external event risk for the specified plant configuration. An example of external event risk is a situation where a reactor core isolation cooling pump (RCIC) has failed and a review of the licensee's individual plant examination of external events or full-scope PRA model identifies that the RCIC pump is used to mitigate certain fire scenarios. Action may be taken to reduce fire ignition frequency in the affected areas or reduce human error associated with time critical operator actions in response to such scenarios.

Response:

All fire detection and suppression systems are expected to remain operable during the NOED period. This is important since fire is a significant contributor to the CDF at Catawba.

g. Discuss forecasted weather conditions for the NOED period and any plant vulnerabilities related to weather conditions.

Response:

No severe weather (defined as winds greater than 58 mph and/or hail 3/4 inch or larger) that could cause a plant transient is in the forecast for the NOED period. The forecast for the immediate period is as follows:

December 15, 2011/Day: A mix of clouds and sun. High 68°F. Winds SSW at 10 to 20 mph.

December 15, 2011/Night: A few clouds. Low 53°F. Winds SSW at 5 to 10 mph.

December 16, 2011/Day: Partly cloudy skies early. A few showers developing later in the day. High 66°F. Winds light and variable. Chance of rain 40%.

December 16, 2011/Night: A steady rain early, then remaining cloudy with a few showers. Low 44°F. Winds NNE at 5 to 10 mph. Chance of rain 70%.

5. The justification for the duration of the noncompliance.

Response:

The 12 hour period of enforcement discretion to not comply with the Mode 4 requirement of LCO 3.0.3 was viewed to be adequate for completing the maintenance and administrative activities necessary for restoring Train A of the CRACWS to operable status.

6. The condition and operational status of the plant (including safety-related equipment out of service or otherwise inoperable).

Response:

Duke Energy has reviewed the TS, the plant operating schedule, and the Work Management System. This review determined that there was no safety related equipment out of service at this time that affected this NOED request. Also, this review identified no other equipment relative to this NOED request that was scheduled to be out of service, nor were there any scheduled plant conditions that present any additional increase in plant risk during the NOED period.

7. The status and potential challenges to off-site and on-site power sources.

Response:

There were no activities scheduled in the switchyard or on the plant transformers that will adversely affect risk during the 12 hour period. Administrative controls would require that any emergent activities relating to risk significant items related to this determination be reevaluated.

8. The basis for the licensee's conclusion that the noncompliance will not be of potential detriment to the public health and safety.

Response:

Duke Energy performed a qualitative PRA risk analysis to support this NOED request to determine that the proposed NOED does not result in any net increase in risk to the public. This analysis, which involved a review of the base case PRA model to identify risk benefits attributable to planned compensatory measures, concluded that the risk of remaining in Mode 3 was small during the period of non-compliance. Further, there were no activities affecting the supporting systems and equipment, including offsite and onsite power sources, for the CRACWS that adversely affect risk during the 12 hour period. Any emergent activities relating to risk significant items would require this determination to be reevaluated. There was no net increase in risk to the public by avoiding the unnecessary transient imposed through compliance with LCO 3.0.3 and safety continued to be assured by the procedural actions governed by AP/0/A/5500/039 and the subsequent restoration of Train A of the CRACWS.

9. The basis for the licensee's conclusion that the noncompliance will not involve adverse consequences to the environment.

Response:

This request for enforcement discretion does not result in any significant changes in the types, or significant increase in the amounts, of any effluents that may be released offsite. In addition, no significant increase in individual or cumulative occupational radiation exposures is involved as a result of the request. Therefore, it can be concluded that the NRC's granting of this request for enforcement discretion does not involve any adverse consequences to the environment.

10. A statement that the request has been approved by the facility organization that normally reviews safety issues (Plant On-site Review Committee, or its equivalent).

Response:

This NOED request was reviewed and approved by the Catawba Plant Operations Review Committee (PORC) in a special meeting on December 15, 2011.

11. The request must specifically address which of the NOED criteria for appropriate conditions specified in Section B is satisfied and how it is satisfied.

Response:

Duke is submitting this NOED request in accordance with NRC Inspection Manual Part 9900 Technical Guidance, "Operations – Notices of Enforcement Discretion", and is requesting discretion based on Section B.2.1, "Situations Affecting Radiological Safety – Regular NOEDs", Criterion 2. This criterion applies to plants in a shutdown condition desiring to reduce shutdown risk by avoiding testing, inspection, or system realignment that is inappropriate for the particular plant conditions, in that it does not provide an overall safety benefit or may, in fact, be detrimental to safety in the particular plant condition. The safety consequences and operational risks for Catawba were reviewed as a part of this NOED request and are documented within this submittal.

12. Unless otherwise agreed as discussed in Section B, a commitment is required from the licensee that the written NOED request will be submitted within 2 working days and the follow-up amendment will be submitted within 4 working days of verbally granting the NOED. The licensee's amendment request must describe and justify the exigent circumstances (see 10 CFR 50.91(a)(6)). The licensee should state if staff has agreed during the teleconference that a follow-up amendment is not needed. If the licensee intends to propose a temporary amendment, the licensee's amendment request shall include justification for the temporary nature of the requested amendment.

Response:

Duke Energy is submitting this written NOED request within 2 working days of the NRC's verbal approval on Thursday, December 15, 2011.

Duke Energy commits to submit a License Amendment Request (LAR) to address the operability requirements for the CRACWS and other systems. Submittal of the LAR will follow NRC approval of TSTF-426, "Revise or Add Actions to Preclude Entry into LCO 3.0.3", NRC approval of WCAP-16125, Rev. 1, "Justification for Risk Informed Modifications to Selected Technical Specifications for Conditions Leading to Exigent Plant Shutdown", and submittal by the Technical Specification Task Force of the corresponding Traveler applicable to Westinghouse plants (currently under development) and subsequent NRC approval of this Traveler.

13. In addition to items 1-12 above, for a severe-weather NOED request the licensee must provide additional specified information.

Response:

This is not a severe-weather NOED request. Weather considerations are discussed in Item 4.